



*From technical to teachable:*  
**Teaching morphology  
without templates**

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# Acknowledgments

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- Co-presenters: Tracy Hirata-Edds, Dylan Herrick, Olivia N. Sammons

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# Question for today



How can we teach word patterns in languages with complex words?

- **Focus:** Dene (Athapaskan) languages (*esp. those in Yukon, northwestern Canada*)

## **FRIDAY • SESSION SEVEN • 2:50–3:20**

### **(2.7.1) Linking language documentation to community needs: Kaska Language workers and the Kaska On-line Dictionary Project**

Patrick Moore • [REDACTED]  
University of British Columbia

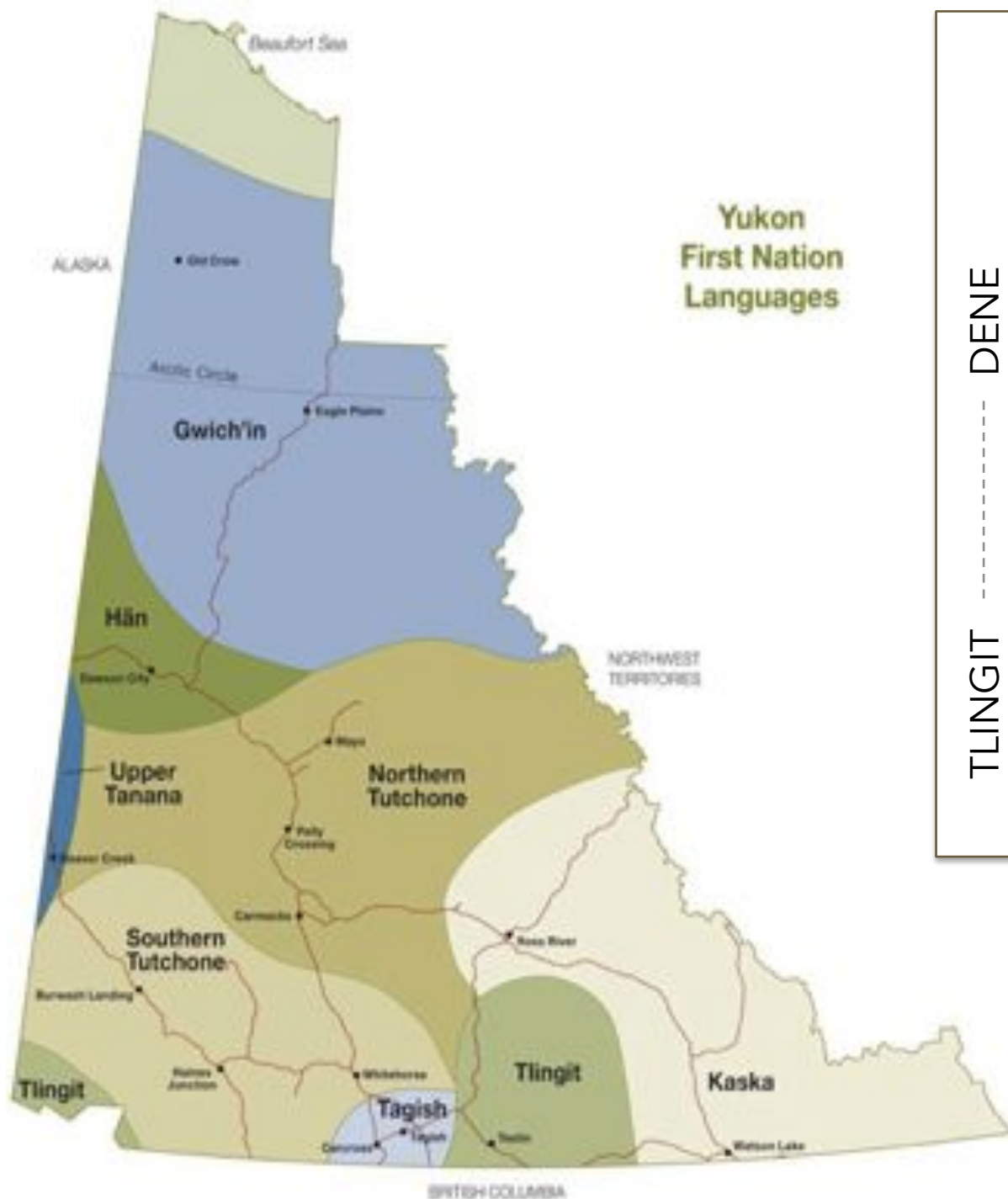
Linda McDonald  
Yukon Education

Selena Pye

Mida (Martha) Donnessey

While one goal of language documentation is often meeting the needs of members of the local source community, it is often unclear what those needs are. This paper examines the needs of community language teachers and language workers participating in the development of an online Kaska (Dene) dictionary.

**HIBISCUS BALLROOM 1**



DENE

Gwich'in

Hän

Upper Tanana

Northern Tutchone

Southern Tutchone

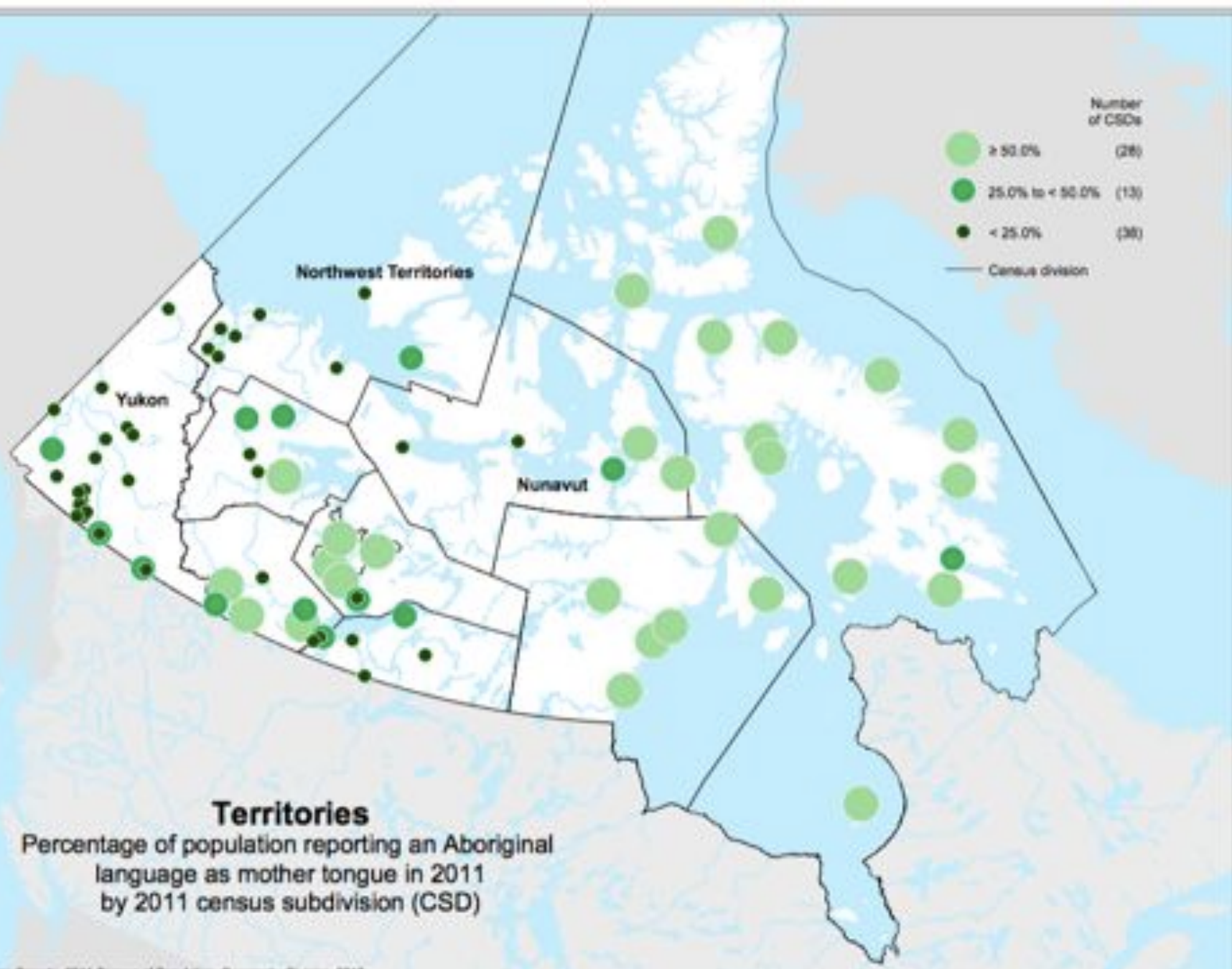
Kaska

*Tagish*

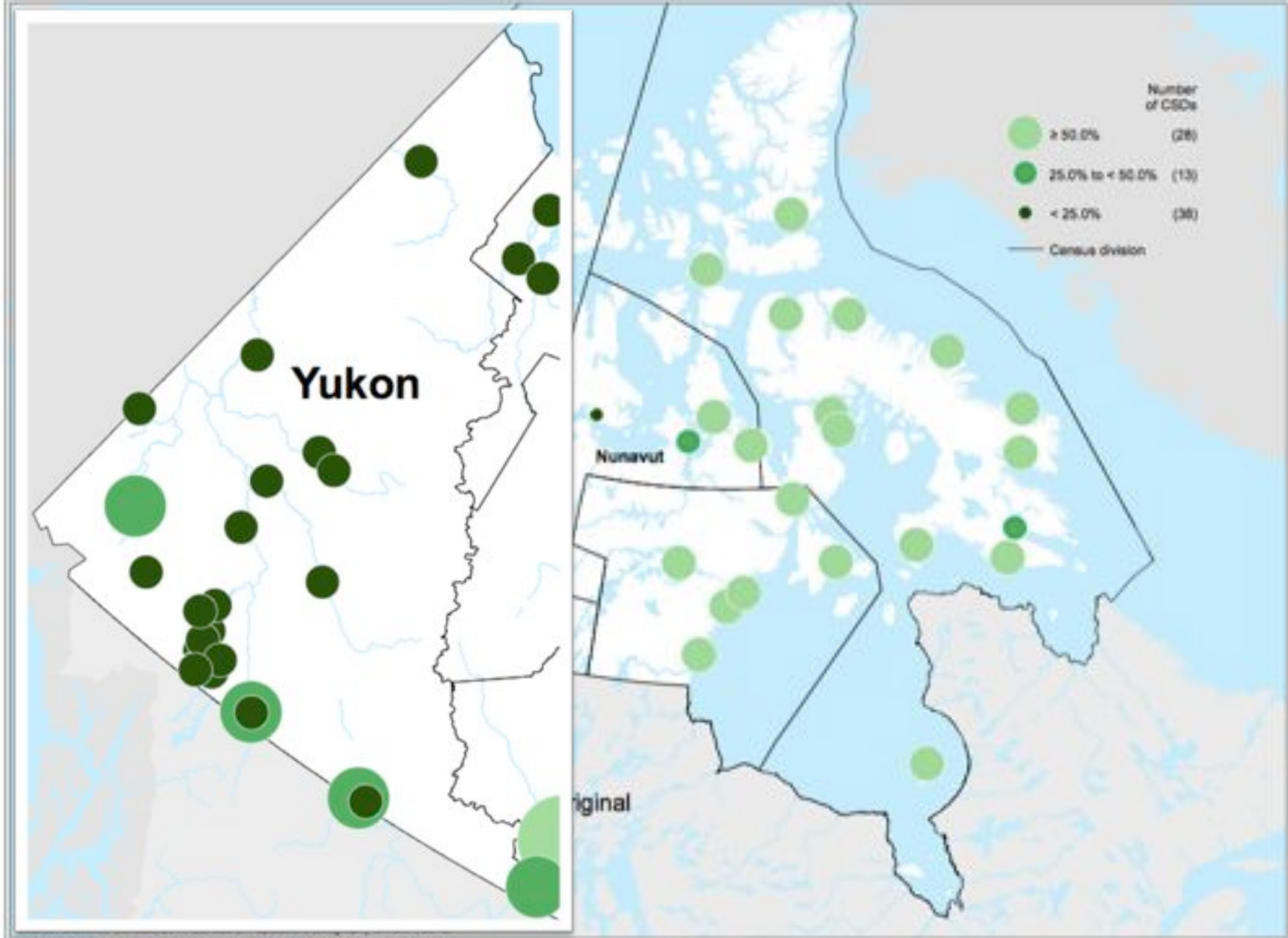
TLINGIT

Tlingit

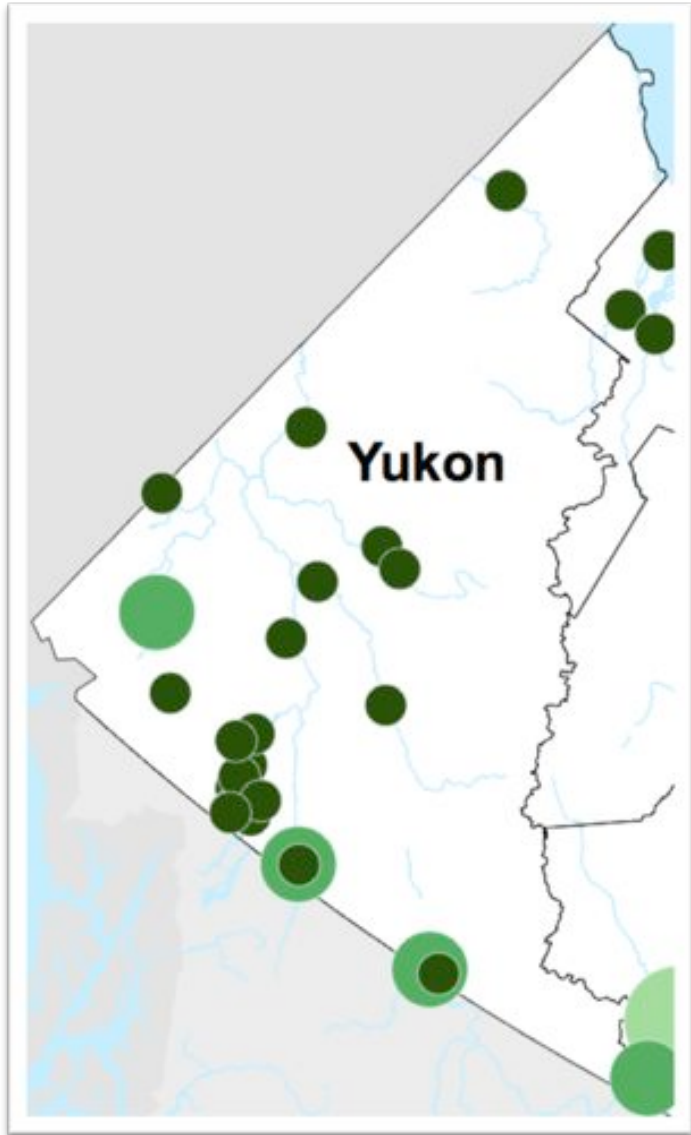




Source: Statistics Canada, 2011 Census of Population, Geography Division, 2012.



# Motivations: Endangerment

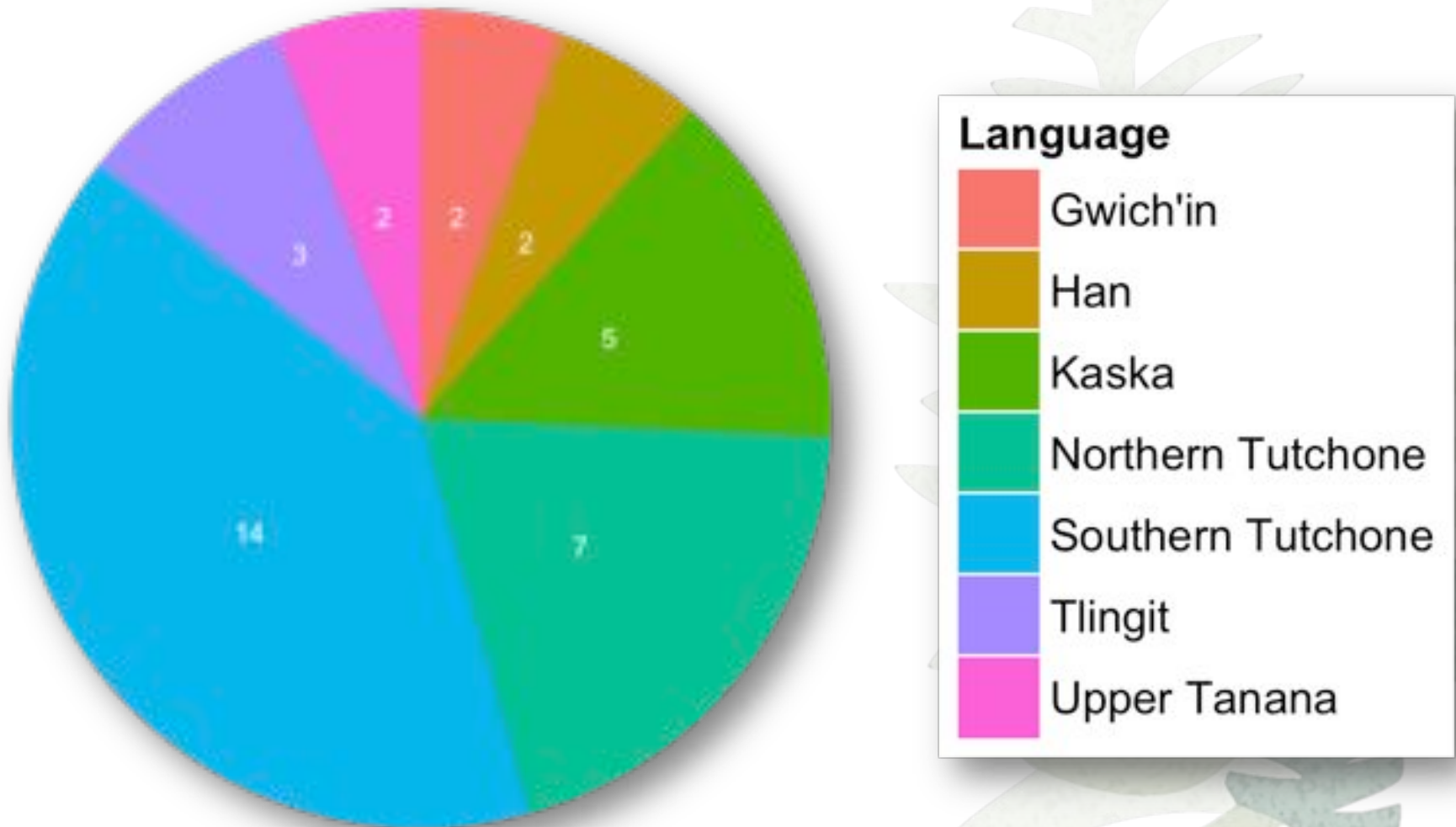


Statistics Canada (2011), on YT:

- Highest levels of Indigenous language endangerment in northern Canada
- No first-language speakers of Yukon Indigenous languages under the age of 50–60
- No children currently learning Yukon Indigenous languages as their first languages



# Motivations: Teachers as learners



Indigenous language teachers in Yukon public schools, 2014-2015

# Motivations: Word structure

- Dene languages: heavily prefixing, stem-final **polysynthetic verbal morphology with fixed prefix order:**

(1) **xà-nà-ná-dà-gi-mi-ts'i-yí-s-ʔààz-la**

xà-	nà-	ná-	dà-	gi-	mi-	ts'i-	yí-	s-	ʔààz	=la
out	down	REP	DISTRIB	3P	DO:3S	UNSPEC.SBJ	ASP	TR	kick.PFV	=EVID

'I guess they've all been kicked out again' (Tsuut'ina; Elder Bruce Starlight, 2011-11-08)

# Motivations: Word structure

## (1) xà-nà-ná-dà-gi-mi-ts'i-yí-s-ʔààz-la

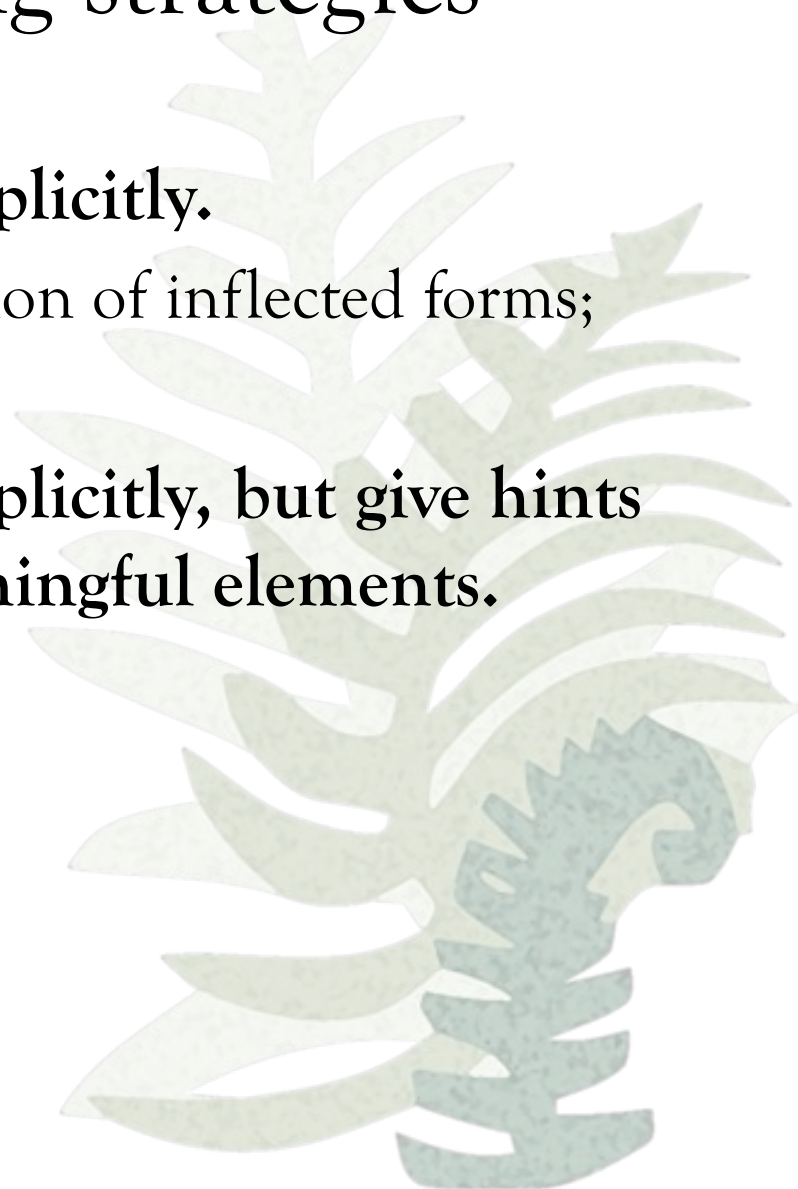
xà- nà- ná- dà- gi- mi- ts'i- yí- s- ʔààz =la  
 out down REP DISTRIB 3P DO:3S UNSPEC.SBJ ASP TR kick.PFV =EVID

'I guess they've all been kicked out again' (Tsuut'ina; Elder Bruce Starlight, 2011-11-08)

Incorporated PP	Adverbial	Iterative (ná-)	Incorporated stem	Distributive (dà-)	Object	3P Subject (Deictic)	Thematic	Aspect <sub>2</sub>	Aspect <sub>1</sub> (Mode)	1/2P Subject	Classifier	STEM
12	11	10	9	8	7	6	5	4	3	2	1	0
	xà- nà-	ná-		dà-	gi- mi-	ts'i-			yí-		s-	ʔààz

# Common teaching strategies

1. Don't teach verb patterns explicitly.
  - Encourages rote memorization of inflected forms; little or no generalization
2. Don't teach verb patterns explicitly, but give hints for recognizing certain meaningful elements.





## Example: Verb ‘hints’

(2) a. shò **ìh** ay

happy

I am

‘I’m happy.’ (H)

“*ih-* means  
‘I’m doing it’”

## Example: Verb ‘hints’

(2) a.

shò **ìh**ay

happy I am

‘I’m happy.’ (Hän; Elder Percy Henry, 2013-12-03)

?

b.

wëshdèy kǒ

‘I don’t know.’

?

c.

ëgëko

‘I’m coughing.’

?

d.

ga näk-’ay

‘I see a rabbit.’

# Common teaching strategies

1. **Don't teach verb patterns explicitly.**
  - Encourages rote memorization of inflected forms; little or no generalization
2. **Don't teach verb patterns explicitly, but give hints for recognizing certain meaningful elements.**
  - Can be helpful, but challenged by discrepancies between different kinds of verbs
3. **Teach the template.**

# Templatic Approach

**gámít**

“they’re swimming along”





# Templatic Approach

**gámíł**

“they’re swimming along”

Incorporated PP	Adverbial	Iterative ( <i>ná-</i> )	Incorporated stem	Distributive ( <i>dà-</i> )	Object	3P Subject	Thematic	Aspect <sub>2</sub>	Aspect <sub>1</sub> (Mode)	1/2P Subject	Classifier	STEM
12	11	10	9	8	7	6	5	4	3	2	1	0
						gi-			yi-			míł

# Templatic Approach

**gámít**

“they’re swimming along”

**1**

ABSTRACT  
PARTS

**gi-**  
they

**yi-**  
he,she,it:PROG

**mít**  
swim:PROG

# Templatic Approach

**gámít**

“they’re swimming along”

**1** ABSTRACT  
PARTS

**gi-**      **yi-**      **mít**  
they      he,she,it:PROG      swim:PROG

**2** ABSTRACT  
RULES

1. gi- yi- mít → gi- **á**- mít (*yi*-Augmentation)
2. gi- **á**- mít → **gámít** (*i*-Deletion)

# Templatic Approach

**gámíł**

“they’re swimming along”

**1** ABSTRACT  
PARTS

**gi-**      **yi-**      **míł**  
they      he,she,it:PROG      swim:PROG

**2** ABSTRACT  
RULES

1. gi- yi- míł → gi- **á-** míł (*yi*-Augmentation)  
2. gi- **á-** míł → **gámíł** (*i*-Deletion)

**3** ACTUAL  
WORDS

**gámíł**  
“they’re swimming”





# Common teaching strategies

1. **Don't teach verb patterns explicitly.**
  - Encourages rote memorization of inflected forms; little or no generalization
2. **Don't teach verb patterns explicitly, but give hints for recognizing certain meaningful elements.**
  - Can be helpful, but challenged by discrepancies between different kinds of verbs
3. **Teach the template.**
  - Shows the full complexity of verb—but abstract, very technical, difficult to parse and produce on-the-fly

“

The morphophonemic alternations in the Athapaskan verb are **notorious**. In concluding his review of Hoijer's *Navaho Phonology*, Harris remarked, “In addition to all the regular or partially regular alternations (in Navajo), **there are so many individual replacements that a set of general rules for deriving phonemic forms (...) seems impossible here.**”

”

# Paradigmatic Approach

**gámít**

“they’re swimming along”

yi- Progressive (no other prefixes)

1s	yismít	“I’m swimming along”
2s	yímít	“you’re swimming along”
3s	yámít	“he/she/it is swimming along”
1P	yaàmít	“we’re swimming along”
2P	yasmít	“you guys are swimming along”
3P	<b>gámít</b>	“they’re swimming along”
4	ts’ámít	“someone’s swimming along”

# Paradigmatic Approach

**gámít**

“they’re swimming along”

Progressive (no other prefixes)

1S	<b>yis-</b>	mít	“I’m swimming along”
2S	<b>yí-</b>	mít	“you’re swimming along”
3S	<b>yá-</b>	mít	“he/she/it is swimming along”
1P	<b>yaà-</b>	mít	“we’re swimming along”
2P	<b>yas-</b>	mít	“you guys are swimming along”
3P	<b>gá-</b>	mít	“they’re swimming along”
4	<b>ts’á-</b>	mít	“someone’s swimming along”



**Semi-predictable morphophonemics**  
(e.g., Kari 1975, K. Rice 2001, i.a.)

**Linguistically  
feasible?**

**Previous paradigmatic analyses**  
(e.g., Goddard 1905, Young & Morgan 1987, Faltz 1998,  
Leer 1999, McDonough 2003, Cox 2010, Eggleston 2013, i.a.)

**Plausibility of grammaticalization**  
(e.g., Givón 2000, Mithun 2011)

**Psycholinguistic results**  
(e.g., S. Rice, Libben & Derwing 2002)

**Analogical extension of inflectional patterns**  
(e.g., Jaker 2013, Cox in prep.)

**Alignment with research on morphological  
productivity and organization**  
(e.g., Baayen 1992, 1993; Ackerman & Malouf 2013)



# Implications for documentation

- How do we arrive at these paradigms in documentation efforts?
  1. Assemble **full sets of inflected forms!** (*e.g., from prior documentation, consultation with speakers*)





No prefix			Inner prefix		Outer prefix	
Basic:	“Cry” (NON-PAST):		“Crawl” (NON-PAST):		“Dream” (NON-PAST):	
	1S ʔistsiy	1P ʔisaàtsiy	1S disdús	1P daàdús	1S nàstà	1P nàsaàtà
	2S nitsiy	2P ʔastsiy	2S dídús	2P dasdús	2S nànità	2P nàstà
	3S ʔitsiy	3P gitsiy	3S didús	3P gididús	3S nàtà	3P nàgità
	4 ts’itsiy		4 ts’ididús		4 nàts’ità	
With s-	“Tickle O” (NON-PAST):		“Throw pl. O” (NON-PAST):		“Paint O red” (NON-PAST):	
	1S ʔiswùsh	1P ʔisaàwùsh	1S disdàʔ	1P daàdàʔ	1S tástk’ááz	1P tásaàk’ááz
	2S niswùsh	2P ʔaswùsh	2S dísdàʔ	2P dasdàʔ	2S tánisk’ááz	2P tásk’ááz
	3S ʔiswùsh	3P giswùsh	3S disdàʔ	3P gidisdàʔ	3S tásk’ááz	3P tágik’ááz
	4 ts’iswùsh		4 ts’idisdàʔ		4 táts’isk’ááz	
With i-			“Run” (NON-PAST):		“Run out(wards)” (NON-PAST):	
			1S dist’áh	1P daàt’áh	1S xàst’áh	1P xàsaàt’áh
			2S díit’áh	2P dast’áh	2S xàniit’áh	2P xàst’áh
			3S diit’áh	3P gidiit’áh	3S xààt’áh	3P xàgiit’áh
			4 ts’idiit’áh		4 xàts’iit’áh	

# Implications for documentation

- How do we arrive at these paradigms in documentation efforts?
  1. Assemble full sets of inflected verbs! (*e.g., from prior documentation, consultation with speakers*)
  2. **Look for larger chunks** (recurring patterns in surface exponance and associated environments)

	No prefix	Inner prefix	Outer prefix
Basic:	<p>“Cry” (NON-PAST):</p> <p>1S <b>ʔistsiy</b>      1P <b>ʔisaàtsiy</b>  2S <b>nitsiy</b>      2P <b>ʔastsiy</b>  3S <b>ʔitsiy</b>      3P <b>gitsiy</b>  4 <b>ts’itsiy</b></p>	<p>“Crawl” (NON-PAST):</p> <p>1S <b>disdús</b>      1P <b>daàdús</b>  2S <b>dídús</b>      2P <b>dasdús</b>  3S <b>didús</b>      3P <b>gididús</b>  4 <b>ts’ididús</b></p>	<p>“Dream” (NON-PAST):</p> <p>1S <b>nàstà</b>      1P <b>nàsaàtà</b>  2S <b>nànità</b>      2P <b>nàstà</b>  3S <b>nàtà</b>      3P <b>nàgità</b>  4 <b>nàts’ità</b></p>
With s	<p>“Tickle O” (NON-PAST):</p> <p>1S <b>ʔiswùsh</b>      1P <b>ʔisaàwùsh</b>  2S <b>niswùsh</b>      2P <b>ʔaswùsh</b>  3S <b>ʔiswùsh</b>      3P <b>giswùsh</b>  4 <b>ts’iswùsh</b></p>	<p>“Throw pl. O” (NON-PAST):</p> <p>1S <b>disdàt</b>      1P <b>daàdàt</b>  2S <b>dísdàt</b>      2P <b>dasdàt</b>  3S <b>disdàt</b>      3P <b>gidisdàt</b>  4 <b>ts’idisdàt</b></p>	<p>“Paint O red” (NON-PAST):</p> <p>1S <b>tástk’ááz</b>      1P <b>tásaàk’ááz</b>  2S <b>tánisk’ááz</b>      2P <b>tásk’ááz</b>  3S <b>tásk’ááz</b>      3P <b>tágik’ááz</b>  4 <b>táts’isk’ááz</b></p>
With i		<p>“Run” (NON-PAST):</p> <p>1S <b>dist’áh</b>      1P <b>daàt’áh</b>  2S <b>díit’áh</b>      2P <b>dast’áh</b>  3S <b>diit’áh</b>      3P <b>gidiit’áh</b>  4 <b>ts’idiit’áh</b></p>	<p>“Run out(wards)” (NON-PAST):</p> <p>1S <b>xàst’áh</b>      1P <b>xàsaàt’áh</b>  2S <b>xàniit’áh</b>      2P <b>xàst’áh</b>  3S <b>xààt’áh</b>      3P <b>xàgiit’áh</b>  4 <b>xàts’iit’áh</b></p>



# Implications for documentation

- How do we arrive at these paradigms in documentation efforts?
  1. Assemble full sets of inflected verbs! (*e.g., from prior documentation, consultation with speakers*)
  2. Look for larger chunks (recurring patterns in surface exponance and associated environments)
  3. **Reduce to core cases**, identify appropriate ways of presenting this information

	No prefix		Inner prefix		Outer prefix	
	“Cry” (NON-PAST):		“Crawl” (NON-PAST):		“Dream” (NON-PAST):	
Basic:	1S <b>ʔ</b> istsiy	1P <b>ʔ</b> isaàtsiy	1S disdús	1P daàdús	1S nàstà	1P nàsaàtà
	2S nitsiy	2P <b>ʔ</b> astsiy	2S dídús	2P dasdús	2S nànità	2P nàstà
	3S <b>ʔ</b> itsiy	3P <b>ʔ</b> astsiy	3S didús	3P gididús	3S nàtà	3P nàgità
	4 ts’itsiy		4 ts’ididús		nàts’ità	
	“Tickle O” (NON-PAST):		“Crawl pl. O” (NON-PAST):		“Paint O red” (NON-PAST):	
With s-	1S <b>ʔ</b> iswùsh	1P <b>ʔ</b> isaàwùsh	1S disdàt	1P daàdàt	1S tástk’ááz	1P tásaàk’ááz
	2S niswùsh	2P <b>ʔ</b> aswùsh	2S dídàt	2P dasdàt	2S tánisk’ááz	2P tásk’ááz
	3S <b>ʔ</b> iswùsh	3P giswùsh	3S didàt	3P gididàt	3S tásk’ááz	3P tágik’ááz
	4 ts’iswùsh		4 ts’ididàt		4 táts’isk’ááz	
			“Run” (NON-PAST):		“Run out(wards)” (NON-PAST):	
With i-			1S dist’áh	1P daàt’áh	1S xàst’áh	1P xàsaàt’áh
			2S díit’áh	2P dast’áh	2S xàniit’áh	2P xàst’áh
			3S diit’áh	3P gidiit’áh	3S xààt’áh	3P xàgiit’áh
			4 ts’idiit’áh		4 xàts’iit’áh	



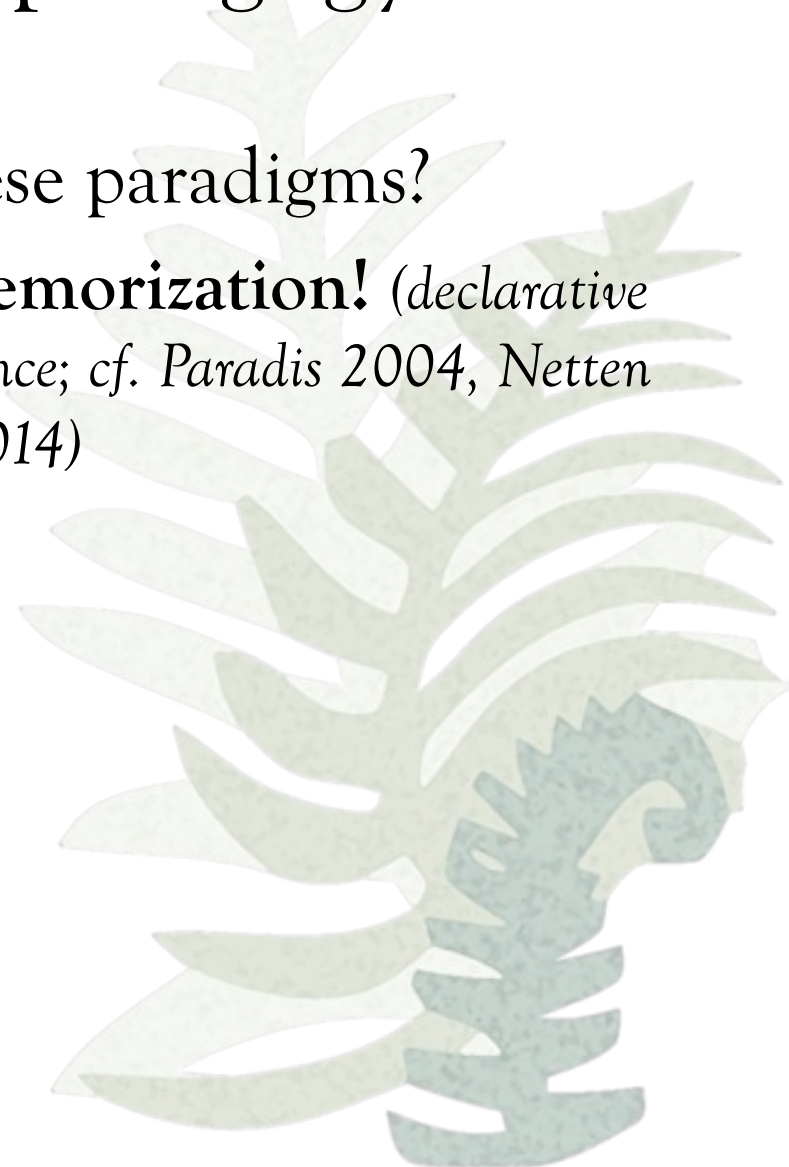
## Basic verb

	With no/outer prefix	With an inner prefix
1s	<b>?is</b> tsiy <i>I'm crying</i>	<b>dis</b> dús <i>I'm crawling</i>
2s	<b>ni</b> tsiy <i>you're crying</i>	<b>dí</b> dús <i>you're crawling</i>
3s	<b>?i</b> tsiy <i>he/she/it is crying</i>	<b>di</b> dús <i>he/she/it is crawling</i>
1P	<b>?isaà</b> tsiy <i>we're crying</i>	<b>daà</b> dús <i>we're crawling</i>
2P	<b>?as</b> tsiy <i>you guys are crying</i>	<b>das</b> dús <i>you guys are crawling</i>
3P	<b>gi</b> tsiy <i>they're crying</i>	<b>gidi</b> dús <i>they're crawling</i>
4	<b>ts'i</b> tsiy <i>someone's crying</i>	<b>ts'idi</b> ús <i>someone's crawling</i>

Examples: **?is**shít 'I'm shouting', **?is**jin 'I'm singing',  
 tá**dis**dlih 'I'm praying', etc.

# Implications for pedagogy

- How can we teach using these paradigms?
  1. **Not necessarily by rote memorization!** (*declarative knowledge vs. procedural competence; cf. Paradis 2004, Netten & Germain 2012, Macfarlane 2014*)



“

An example of a learning practice that demonstrates an **inappropriate learning strategy** is the **memorization of verb conjugations**. In real conversation, only one appropriate form of the verb, followed by an adverb, object or appropriate completion of the utterance, is used. Memorizing a series of verb forms as a block makes it **more difficult to locate the appropriate form for a particular sentence**.

”

In verb conjugations, "I" is followed by  
"You", etc.

**Present Indicative : TO BE**

I	am
You	are
He/she/it	is
We	are
You	are
They	are

**Knowledge**

**Doesn't happen in real life**

**Inappropriate transfer, difficult...**



In verb conjugations, “I” is followed by  
“You”, etc.

Basic verb	
<b>?istsiy</b>	I'm crying
<b>nitsiy</b>	you're crying
<b>?itsiy</b>	he/she/it is crying
<b>?isaàtsiy</b>	we're crying
<b>?asitsiy</b>	you guys are crying
<b>gitsiy</b>	they're crying
<b>ts'itsiy</b>	someone's crying

Knowledge

Doesn't happen in real life

Inappropriate transfer, difficult...

# Implications for pedagogy

- How can we teach using these paradigms?
  1. **Not necessarily by rote memorization!** (*declarative knowledge vs. procedural competence; cf. Paradis 2009, Netten & Germain 2012, Macfarlane 2014*)
  2. By embedding **many repetitions** of the same paradigm in **many different communicative contexts** (*implicit learning of grammatical patterns in contexts resembling actual contexts of use; cf. Manatowa-Bailey 2012*)

# Conclusions

1

Paradigms show that **surface-oriented alternatives** to templates are feasible in documentation and description.

- ‘De-exceptionalize’ the profile of these languages in morphological typology, align with current research
- Call attention to phenomena that templates struggle to explain (e.g., *analogical levelling/extension*; Jaker 2013, Cox in prep.)

# Conclusions

2

Paradigms present word formation as a handful of **concrete, productive patterns** that closely resemble what learners hear and say.

- Lend themselves to embedding in communicative activities, reinforcement learning
- Reduces the ‘jargon load’ on learners by removing the template—helping move from technical to teachable

Gùnèłchīsh! (TAGISH)

Gunałchîsh! (TLINGIT)

Gwàràschis! Shàw níthan! (SOUTHERN TUTCHONE)

Hay'! Mäh̄si! (HÄN)

Mäh̄si'! (GWICH'IN)

Máhsin! (NORTHERN TUTCHONE)

Mási! Sógá sénlá'! (KASKA)

Tsin'jj! (UPPER TANANA)



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